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Abstract

To select a rate for data transmission in a multi-carrier MIMO system with a multipath MIMO channel, a post-detection SNR for each subband k of each spatial channel is initially determined and used to derive a constrained spectral efficiency based on a constrained spectral efficiency function of SNR and modulation scheme M. An average constrained spectral efficiency for all subbands of all spatial channels used for data transmission is next determined based on the constrained spectral efficiencies for the individual subbands/spatial channels. An equivalent SNR needed by an equivalent system with an AWGN channel to support a data rate of is determined based on an inverse constrained spectral efficiency function . A rate is selected for the multi-carrier MIMO system based on the equivalent SNR. The selected rate is the highest rate among all supported rates with a required SNR less than or equal to the equivalent SNR.